

Virginia Veterinary Medical Association



Town & Country Call

Human Rabies Vaccination and Titer Monitoring Basics for Animal Health Professionals

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The Purpose of Rabies Primary or Pre-exposure Vaccination

The health department encourages those who work in professions at higher risk for rabies exposure, such as veterinarians, animal handlers, and certain laboratory workers to undergo a series of three rabies vaccines in order to be considered pre-exposure vaccinated in case they are ever exposed to rabies. Pre-exposure prophylaxis is administered for several reasons. First, if a person undergoes the pre-exposure series, it eliminates the need for Rabies Immune Globulin (RIG) if that person is ever considered exposed and needs to receive booster vaccinations. RIG is ONLY given to those who have NEVER received rabies vaccinations. Administering RIG to those who have been previously vaccinated may interfere with that person's response to booster vaccines. Pre-exposure prophylaxis recipients also require fewer doses of vaccine if exposed in contrast to those who have never received any vaccine. In addition, pre-exposure prophylaxis might protect persons whose post-exposure therapy is delayed and may also provide protection to persons at risk for unapparent exposures to rabies.

While pre-exposure vaccines are important, all health professionals who are considered at higher risk for rabies exposures are also encouraged to take the appropriate precautions in regard to preventing rabies exposures. Use of barrier precautions to prevent penetrating wounds from bites, as well as other bite prevention techniques, and to prevent saliva or central nervous system tissue from a potentially rabid animal entering an open wound or mucous membrane is highly recommended.

Rabies Pre-exposure Vaccination Schedule

Three 1.0-mL injections of either a human diploid cell based (Imovax®) or a purified

chick embryo based (RabAvert®) vaccine should be administered intramuscularly (deltoid area) — one injection per day on days 0, 7, and 21 or 28. **Please note that there has been an interruption of the supply of rabies vaccine and as of May 19, 2008, rabies vaccine will be available for post-exposure prophylaxis only. It is expected that additional vaccine will be available again in July 2008. More information and updates concerning this situation can be found at www.cdc.gov/rabies/news/.*

Titer Schedule

It is recommended that those who are pre-exposure vaccinated and are at continuous or frequent risk of rabies exposure undergo periodic serologic testing. Most veterinarians and veterinary hospital staff in Virginia would be considered at frequent risk of exposure and, therefore, titer assessment every 2 years is considered appropriate. Titers should be assessed using the rapid fluorescent focus inhibition test (RFFIT) which is available through both Atlanta Health Associates, Inc. (www.atlantahealth.net) and the Kansas State Veterinary Diagnostic Laboratory (<http://www.vet.ksu.edu/depts/dmp/service/rabies/index.htm>). Those who are pre-exposure vaccinated should receive one booster if the serum titer fails to maintain a level corresponding to a value of at least complete neutralization at a 1:5 serum dilution by the RFFIT. The only other time a person who is pre-exposure vaccinated should receive additional vaccines is if he is exposed to rabies. If a previously vaccinated person is exposed to rabies he is considered immunologically primed against rabies and only requires a series of 2 vaccines spaced three days apart.

It is important to remember that titers should not be used in place of booster vaccines if a person is exposed. Titers do not

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directly correlate with protection because other immunologic factors also play a role in preventing rabies, and our abilities to measure and interpret those other factors are not well developed. It is hoped that if one maintains a high enough titer, that person will be protected if he is ever exposed to rabies, but is unaware of the exposure. However, if a person knows he has been exposed and/or is assessed by public health officials as meeting the health department's definition of exposure, a 2 dose booster series is recommended.

Potential human rabies exposures, questions concerning vaccine schedules and the clinical services available in this regard in your locality should be brought to the attention of your local health department.

For more information concerning this and other issues associated with rabies, including the latest versions of the guidelines for both human and animal rabies prevention, visit the Virginia Department of Health's Rabies Control page which can be found at www.vdh.virginia.gov/Epidemiology/DEE/Rabies/ and the Centers for Disease Control and Prevention Rabies page at www.cdc.gov/rabies.

Reference:

Centers for Disease Control and Prevention. Human Rabies Prevention—United States, 2008. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2008; 57;1-26, 28.